New Claims

1. A measuring method for taking and evaluating line images of moving surfaces (5), such as are obtained by means of methods of interferometry or line projection, wherein the surface (5) is excited to perform oscillations or other periodic movements at a fixed frequency, wherein the movement has a translatory and/or a rotatory displacement portion and/or a deformation portion, wherein individual recordings are made for producing image sequences synchronously with the surface movement, and conclusions regarding a movement of the surface or a chronological change of the movement are drawn from the detected position of the lines in the image sequences.

characterized in that

the individual recordings are made with an electronic camera in a fixed phase position in relation to the oscillation excitation and at such short exposure times that the movement of the lines during the exposure time is negligible, and

the individual recordings are added up in an image recording component (9) of the camera to a summed image with a contrast, which is sufficiently high for evaluation, and is read out in a read-out cycle.

2. The measuring method in accordance with claim 1,

characterized in that

several of the summed images with a changed phase position (35 to 38) of the interfering waves or the projected lines are recorded in accordance with a phase shift method,

these images are respectively recorded for surface movements with at least two different amplitudes,

the summed images are balanced with each other, and

the change of the interference phase, or of the line phase because of the movement change is calculated for each surface point and conclusions are drawn from this regarding the movement of the surface.

3. The measuring method in accordance with claim 2,

characterized in that

several summed images with different phase positions (35 to 38) of the recording time in regard to excitation are generated, and

a linkage between the excitation and oscillation phase can be derived from the analysis of the summed images as a function of the phase position (35 to 38).

4. The measuring method in accordance with one of the preceding claims,

characterized in that

the excitation frequency is varied, and

conclusions are drawn regarding the oscillation shapes of the surface (5) from the analysis of the oscillation behavior as a function of the phase and frequency in accordance with a modal analysis.

5. A measuring method for taking and evaluating line images of moving surfaces (5), such as are obtained by means of

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methods of interferometry or line projection, wherein the surface (5) is excited to perform oscillations or other periodic movements at a fixed frequency, wherein the movement has a translatory and/or a rotatory displacement portion and/or a deformation portion, wherein chronologically averaged recordings of the surface movement are performed for different excitation parameters,

characterized in that

the images are recorded during the length of time of a period of the movement or a multiple thereof,

the images are recorded with at least two excitation amplitudes of the surface (5),

for each excitation period several recordings with different phase positions of the interfering waves or projected lines in accordance with a phase shift method are made, and

the images are balanced with each other, wherein the change of the interference amplitude, or of the line amplitude, is determined for each point on the surface (5) when the excitation amplitude is changed, and conclusions can be drawn from this regarding the change of the movement amplitude.

6. The measuring method in accordance with claim 5,

characterized in that

the measurement described in claim 6 is performed several times with different excitation amplitudes, and

with a given excitation amplitude conclusions regarding the movement amplitude can be drawn from the course of the

interference amplitude, or of the line amplitude, as a function of the excitation amplitude at each surface point.

7. The measuring method in accordance with one of the preceding claims, characterized in that

the lines are created in accordance with an electronic speckle pattern interferometry method, a holographic interferometric method, a line projection method or a moiré method.